

# **The Nanotechnology Institute**

## **Model for Rapid Commercialization of Complex Technology**

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# The Nanotechnology Institute

§ Collaborative effort to promote discovery & commercialization of nanotechnology applied to solving problems in medicine and life sciences

- Recognition of technical contributions that cross technical and university boundaries for nanotechnologies
- Academic research programs need commercial input to promote technologies with product potential of high value

# NTI Mission

**To focus:**

- **On transfer of discoveries and intellectual knowledge from universities to industry partners and**
- **On the rapid application and commercialization to stimulate economic growth.**

# NTI Goals

- § **Position Southeastern Pennsylvania as a significant region in Nanotechnology (focused on bio)**
- § **Accelerated commercialization for the movement of technology to products**

# Steps in forming the NTI

## § Canvas companies to identify

- Commercialization strategy
- Potential roadblocks
- What is needed from academic community

## § Engage Universities to form

- Acceptable relationships
- Willingness to participate
- Commitment to NTI policies and guidelines

# Steps in forming the NTI

## § Propose a unique entity to Commonwealth of PA to obtain

- Initial financial commitment (\$10.8M /3 years )
- Expectation of return
- Accelerated commercialization
- Industry “buy-in” and guidance
- Workforce development for future returns

# Steps in forming the NTI

## § **Proposal to Commonwealth consisted of**

- **Two principal investigators (drive the Research and Development)**
  - David Luzzi, Ph.D., University of Pennsylvania
  - Kambiz Pourrizaei, Ph.D., Drexel University
- **Ben Franklin Technology Partners (drive commercial and economic development)**
- **Four research focus areas**
  - Drug Delivery
  - Biosensors
  - Tissue Engineering
  - Cellular Probes

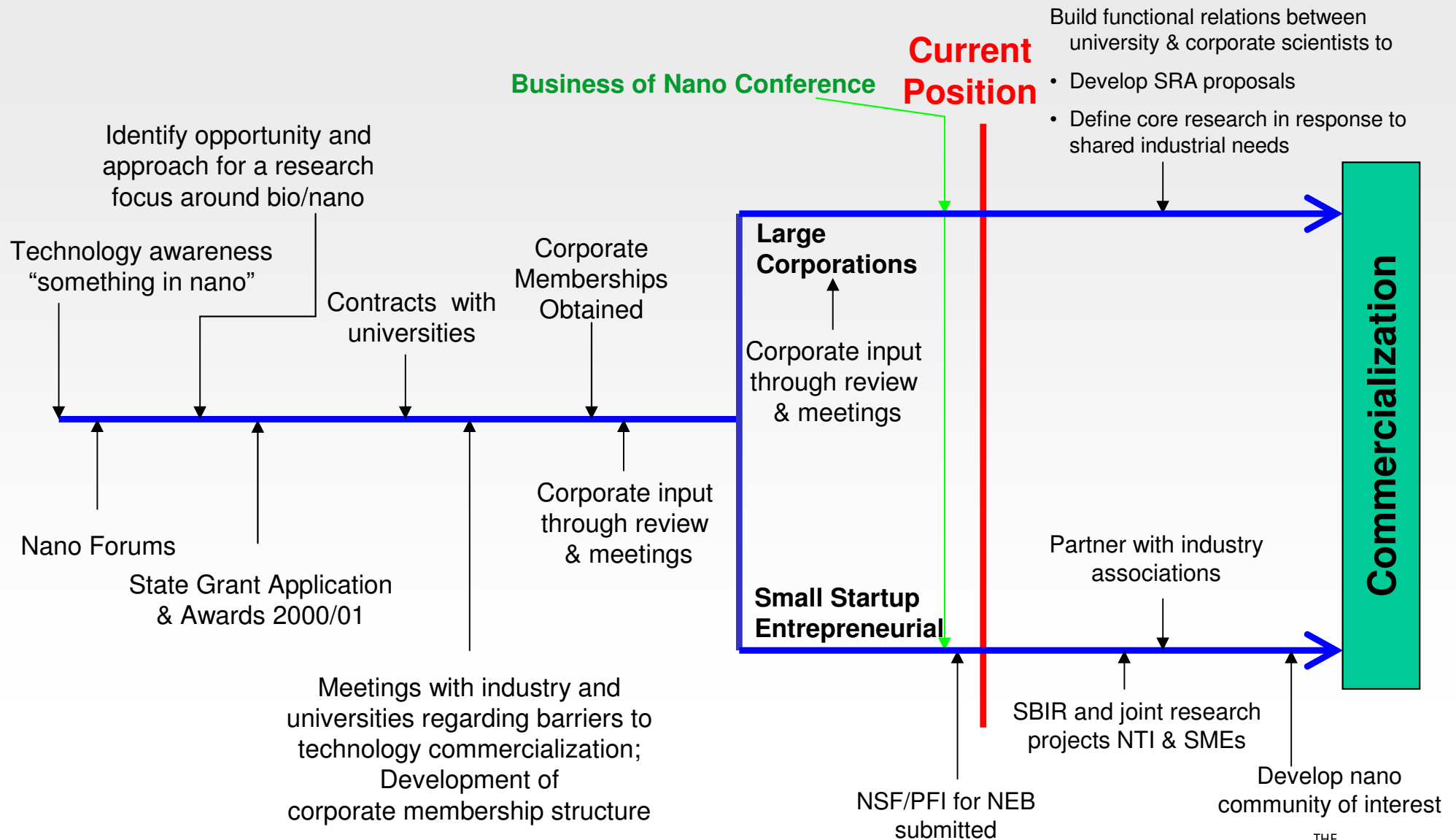
# Steps in forming the NTI

## § Commercialization issues:

- § Perform valuation and evaluation of research
- § Control of technology developed by multiple contributors
- § Eliminate barriers to commercialization
- § Identify rapid and maximized entry to commercial path



# NTI Corporate Development



# NTI Structure

## § Elements of Governance

- § Management
- § Corporate Membership
- § Intellectual Property Policy
- § Sponsored Research Agreement
- § Return to NTI for continuance

## § NTI consists of enabling contracts and agreements between:

- § Faculty
- § Corporate Members
- § Universities
- § BFTD (EDO)

# NTI Management

- § **Oversight Committee**
- § **Management Committee**
- § **Advisory Committees**
  - § **Corporate Advisory Committee**
  - § **Academic Advisory Committee**
  - § **Economic Development Corporate Relations and Commercialization Committee**

# NTI Management

- § **NTI Oversight Committee**
  - § **Composed of the founding member organizations (Penn, Drexel and BFTP)**
  - § **Authority for Decisions and Overall Policy of the NTI**
  - § **Responsible for the NTI operations**
  - § **Assure compliance with all contractual obligations of the NTI**

# NTI Management

## § Management Committee

- § Composed of key individuals from each of the three founding organizations (Penn, Drexel and BFTP)
- § Provide programmatic direction
  - § Corporate relations
  - § Economic development
  - § Workforce development
  - § Provides daily management

# NTI Management

## § Corporate Advisory Committee

- § Provides guidance with respect to Business Development activities
- § Provides input with respect to commercial opportunities
- § Members are representatives from corporations, academic institutions and BFTP

## § Academic Advisory Committee

- § Provide guidance with respect to University policy as it pertains to the NTI
- § Participate in the creation of policies and procedures, consistent with the mission of the NTI universities
- § Composed of leadership from each of the participating academic institutions

# NTI Structure

## § Corporate Membership

- § Guidance with respect to Intellectual Property with Commercial Value
- § “Captured audience” for early licensing of technology
- § Funding as a carrot to guide research

# Commercialization

- § **Commercialization of Intellectual Property**
  - § Inventors assign % contribution & identify lead organization
  - § Commercialization activities assigned to the identified lead organization
  - § Oversight Committee can identify suitable third party organization for commercialization obligation if no member fulfills this role



# Commercialization

- § **“University TT Office” provides Preliminary Disclosure Forms from NTI faculty**
  - § Within 30 days, University to assess commercial potential of NTI funded disclosures
  - § University files US Provisional Patent Application
- § **NTI provides disclosures to member companies**
  - § NTI member companies have a first right to assess commercial potential & negotiate a license (150 days)
    - If no company elects to license a disclosure, University & the NTI either alone or together may elect to protect it
  - § **Proceeds from licensing will be determined by an agreed upon schedule**

# Commercialization

## § NTI to provide uniformity with respect to sponsored research agreements

- § Member and non-member participation
- § Lead University SRA policy governs
- § Management return to NTI based upon schedule
- § Intellectual Property policy of lead university prevails

### **Except:**

- § Member companies have 150 days to exercise a preferential licensing position on SRA funded projects

# Nanotechnology Based Companies

- § PolyMedix - developing biomimetics - non-peptide drugs for membrane protein and protein:protein targets
- § Franklin Fuel Cells, Inc. - high technology company commercializing solid oxide fuel cell (SOFC) technology
- § Nanoselect – Creation of composite material incorporating nanotubes to provide enhanced physical properties
- § Small Scale Manufacturing – Fabrication of self assembling multi-component nano-structures

# NTI Overview

- § **Focus on Nanotechnology within Life Sciences**
- § **Involve commercial guidance early in process**
- § **Permit closer university, company, entrepreneurial relations to promote commercialization**
- § **Commercialize university generated technology to raise support for continuation of program**